

Phase Equilibria Diagrams

Maintain and develop a state-of-the-art database of critically evaluated ceramic phase equilibria data for industrial and academic customers.

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Technical evaluation of phase diagrams culled from the primary literature is carried out by NIST. Preparation of the evaluated diagrams for publication and dissemination is carried out at NIST by personnel of the American Ceramic Society (ACerS) supported by funds raised by the Society from industry, academia, and individuals. This collaboration of more than 60 years represents an agreement with ACerS to provide evaluated phase diagrams for the ceramic industry. The phase diagrams are supplied either in printed form or in computerized versions, and are distributed through the ACerS.

The current database was created in the mid-1980's and is currently undergoing a complete modernization. The HP-based system containing approximately 35,000 text and graphics entries will be integrated into a modern, relational database hosted on a PC-based platform. The new system will be capable of electronic publishing in a variety of formats, including a Web-based version. Much of this year's efforts have been assisting and working with the software vendor to design and build the new system, which must incorporate all of the scientific data relationships embodied in the original database. In addition, NIST-ACerS data center personnel have substantially completed required modernization tasks including upgrading of the digitization software originally written by NIST staff, and input of 2,000 commentaries and 6,955 diagrams from older volumes of the series that did not exist as electronic files.

Electronic input of Volume XIII of the series was also completed. This volume, edited by R.S. Roth, contains phase diagrams pertinent to oxide systems. Publication of this volume will occur upon completion of the modernization process in 2001. A second monograph entitled "Oxides of Ti, Nb, and Ta: Electronic Ceramics I", is now in progress, and will be edited by R.S. Roth and T.A. Vanderah. Most of the systems to be included in this volume will be of major interest to the fields of dielectric, ferroelectric, and piezoelectric ceramics.

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